THIAGARAJAR COLLEGE OF ENGINEERING, MADURAI-15
(A Govt. Aided Autonomous Institution affiliated to Anna University)
- where quality and ethics matter

IoT BASED PRODUCT RECOMMENDATION SYSTEM USING MACHINE LEARNING

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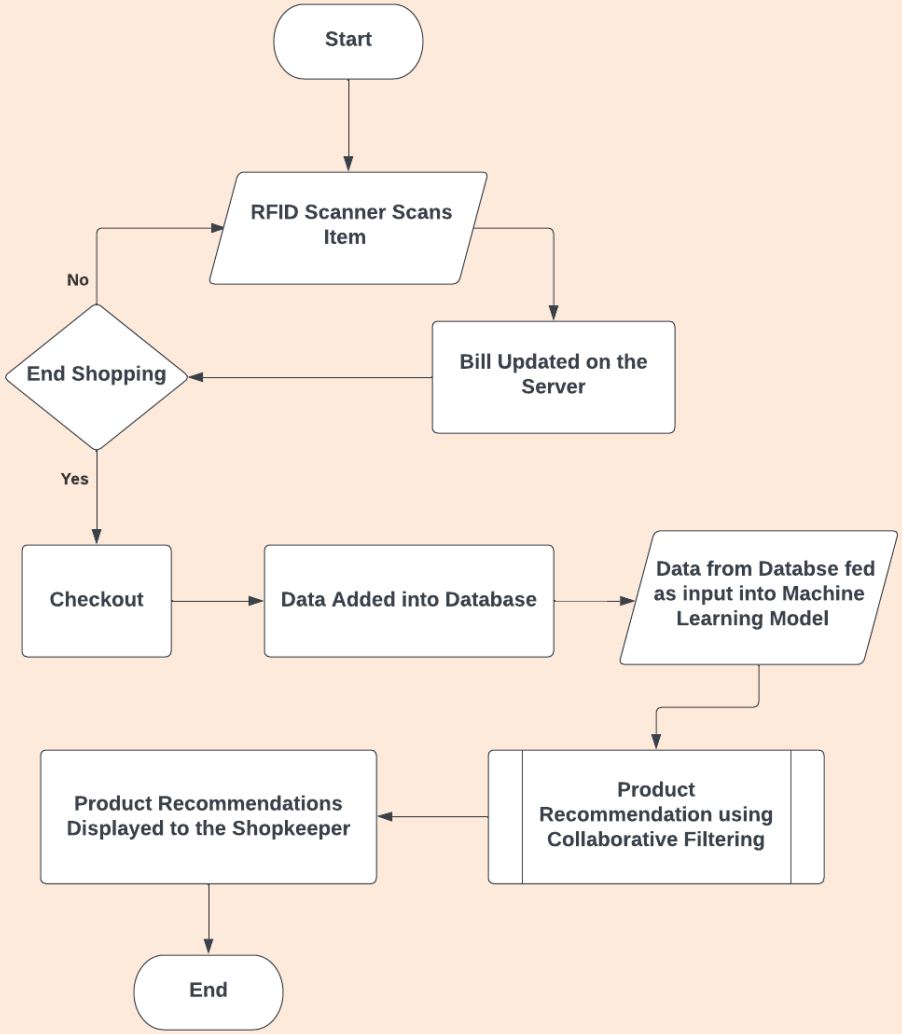
OBJECTIVES

- To automate the billing process instead of waiting for long queues at stores.
- To recommend a particular product and all of it's related products based on the availability of current stocks and arrival of new stocks.
- To manage the stocks better by collecting the necessary information such as the goods sold, available goods and to recommend the frequently sold products and their related products.
- To implement better marketing strategies, to increase the sales of goods and services and make the business profitable.

DESIGN OF THE SYSTEM



CONTRIBUTIONS

NITIN VINAYAK S	RAJARAJESVARRI G
Collected Dataset to Train the Machine Learning Model & Testing the Model	Code for the Machine Learning Model
Display the Machine Learning Model's output in a website using Flask	Integration of Hardware Components
Research Paper	Research Paper

RESULTS & DISCUSSIONS

- Collection of Dataset using RFID
  - The dataset for the construction of the the Machine Learning Model has been collected.

- Built Machine Learning Model (i.e Product Recommendation Engine)
  - The model has been successfully run using a sample dataset. The model is being constructed for our dataset.

- Integration of Python Flask
  - In-order to display the list of recommended products in the web-app a flask module has been used.

Action Plan

for Completion of the Project

Works	Description	Start date	End date	Status
Domain and Sub-Domain	Selecting Domain(IoT) and Sub-Domain(ML)	Jan 4th, 2023	Jan 8th 2023	Completed
Literature Survey	Studied IEEE, Springer, Wiley, Tech Science Press journals	Jan 9th ,2023	Jan 15th ,2023	Completed
Problem Statement	Formulation of the problem Statement	Jan 16th ,2023	Jan 19th,2023	Completed
Methodology	Identifying different methods of implementation	Jan 21st ,2023	Feb 1st ,2023	Completed
Dataset collection	Collecting required datasets	Feb 2nd ,2023	Feb 9th ,2023	Completed
Code for Machine Learning Model	ML Model for Recommendation of Products to Shopkeepers	Feb 11th, 2023	Feb 28th, 2023	Completed
Integration using Flask	To display the Product Recommendations to the Shopkeepers	Mar 1st, 2023	Mar 9th, 2023	Yet to be Completed

REFERENCES

S.NO	Author	Title	Journal / Conference	DOI / Link
1	Satheesan, P., Haddela, P. S., & Alosius, J.	Product Recommendation System for Supermarket	19th IEEE International Conference on Machine Learning and Applications (ICMLA)	10.1109/ICMLA51294.2020.00151
2	Gupte, R., Rege, S., Hawa, S., Rao, Y. S., & Sawant, R.	Automated Shopping Cart Using RFID with a Collaborative Clustering Driven Recommendation System	Second International Conference on Inventive Research in Computing Applications (ICIRCA)	10.1109/ICIRCA48905.2020.9183100
3	Shankar, S. K., Balasubramani, S., Basha, S. A., Ahamed, S. A., & Reddy, N. S. K.	Smart Trolley for Smart Shopping with an Advance Billing System using IoT	5th International Conference on Computing Methodologies and Communication (ICCMC)	10.1109/iccmc51019.2021.9418348
4	Balamurugan, M., Prabhakar, G., Amsaveni, G., Karthikumar, M., Shifa, J. J., & Sharmila, E.	IoT-based Intelligent Mobile Application for Shopping	International Conference on Automation, Computing and Renewable Systems (ICACRS)	10.1109/ICACRS55517.2022.10029137

REFERENCES

S.NO	Author	Title	Journal / Conference	DOI / Link
5	Mekruksavanich, S.	Supermarket Shopping System using RFID as the IoT Application	Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON)	10.1109/ ECTIDAMTNCON48261. 2020.9090714
6	Hameed, M. A., Al Jadaan, O., & Ramachandram, S.	Collaborative Filtering based Recommendation System: A Survey	International Journal on Computer Science and Engineering	Collaborative Filtering based Recommendation System: A Survey
7	Srifi, M., Oussous, A., Ait Lahcen, A., & Mouline, S.	Recommender Systems based on Collaborative Filtering using Review Texts - A Survey.	Information, 11(6), 317	10.3390/info11060317

REFERENCES

S.NO	Author	Title	Journal / Conference	DOI / Link
8	Suárez, Franz & Caiza, Germán & Yoo, Sang Guun.	Stock Management System using RFID and Geolocation Technologies.	International Journal of Applied Engineering Research. 12.	Stock Managenment System using RFID and Geolocation Technologies
9	Vidyaetal, K, P.	Virtual Cart : Novel Approach for Revamping Smart Shopping Experience	Distributed Computing, VLSI, Electrical Circuits and Robotics (DISCOVER)	10.1109/ discover.2018.8674117

CATEGORY OF THE PROJECT

Research & Development (R&D)

The goal of a R&D project is generally to increase efficiency of the existing product and to contribute towards growth and success.

In today's world, barcode scanning is the typical means of billing. But we have carried out research on RFID scanning and we tend to develop a RFID scanner that will be embedded into shopping trolleys to carry out automated billing. We then develop a Recommendation Engine for Shopkeepers. We tend to increase the sales of the offline store.

Hence, our project falls under the category of R&D.